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HPNO: 10004808-1

AUG 19 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Osamu S. Nakagawa

Confirmation No.: 3635

Serial No.: 09/891,324

Examiner: Schillinger, Laura M.

Filed: June 27, 2001

Group Art Unit: 2813

Title: PROCESS FOR HIGH-DIELECTRIC CONSTANT METAL-INSULATOR
METAL CAPACITOR IN VLSI MULTI-LEVEL METALIZATION SYSTEMS

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Commissioner for Patents
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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Sir:

Applicant respectfully requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This Request for Review is being filed concurrently with a Notice of Appeal and is submitted for the reasons stated on the attached sheets.

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REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

Claims 1-13 are pending in the present application, of which Claim 1 is independent.

Rejection of Claims 1-4 and 7-12 is Improper

The Official Action mailed on March 8, 2005 (the "Official Action") has improperly rejected Claims 1-4 and 7-12 under 35 U.S.C. § 102(b) as allegedly being anticipated by the disclosure contained in U.S. Patent No. 6,051,858 to Uchida et al. As will become clearer from the discussion below, the Official Action has failed to correctly interpret the disclosure contained in Uchida et al. and has failed to meet the test for anticipation.

Claim 1 of the present invention recites:

A method of forming a by-pass capacitor on a multi-level metallization device, said method comprising:

forming a first electrode in a first dielectric layer of said multi-level metallization device;
depositing a substantially thin insulator layer over said first dielectric layer of said multi-level metallization device; and
forming a second electrode in a second dielectric layer, wherein said second dielectric layer is formed over said substantially thin insulator layer.

Interpretation of Uchida et al. is Clearly Incorrect

In setting forth the rejection of Claims 1-4 and 7-12 under 35 U.S.C. § 102(b), the Official Action makes the following interpretations:

that the bottom electrode 32 of Uchida et al. reads on the first electrode of Claim 1;
that the layer 34 of Uchida et al. reads on the first dielectric layer of Claim 1; that the layer 34 of Uchida et al. also reads on the substantially thin insulator layer of Claim 1; that the wiring

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connection 55 of Uchida et al. reads on the second electrode of Claim 1; and that the protective layer 40 of Uchida et al. reads on the second dielectric layer of Claim 1.

The Official Action also asserts that these cited elements are illustrated in Figure 5 of Uchida et al. in the manner as claimed in Claim 1. There are, however, clear distinctions between the elements of Claim 1 and the elements depicted in Figure 5 of Uchida et al.

Initially, the assertion that the protective layer 40 of Uchida et al. reads on the second dielectric layer of Claim 1 is incorrect because the protective layer 40 is not a dielectric layer. Instead, the protective layer 40 "comprises one or more metals with oxygen and/or nitrogen." Column 9, lines 28-30 of Uchida et al. As such, the protective layer 40 appears to be a conductor of electricity and not an insulator of electricity.

In addition, the assertion that the layer 34 is deposited over the layer 34 ~~to read on~~ "depositing a substantially thin insulator layer over said first dielectric layer" is improper because a single layer 34 cannot reasonably be construed as being deposited over itself. As shown very clearly in Figure 5 of Uchida et al., the layer 34 comprises a single layer that is most likely deposited during a single deposition operation and not for two separate operations. Therefore, there appears to be absolutely no disclosure in Uchida et al. to support the conclusion that the layer 34 is deposited as separate layers.

For at least these reasons, the allegation that Uchida et al. anticipates Claim 1 is improper and should be withdrawn.

Anticipation Rejection is Improper

Even assuming for the sake of argument that the above-listed interpretation of Uchida et al. is proper, the proposed interpretation would still fail to disclose each and every element claimed in Claim 1. For instance, Uchida et al. fails to disclose that a first electrode is

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formed in a first dielectric layer and that a substantially thin insulator layer is deposited over the first dielectric layer as recited in Claim 1. Instead, Uchida et al. discloses in Figure 5, that the bottom electrode 32 is formed in the layer 34 and that a top electrode 36 is formed on top of the layer 34.

The Official Action acknowledges this deficiency in Uchida et al. in the "Response to Arguments" section on pages 5 and 6 of the Official Action. More particularly, the Official Action asserts that the layer 34 "could be divided into two layers has[sic] a dielectric layer formed on it. The upper portion of element 34 meets the requirements of Applicant's claim language in that it lies over the lower portion of 34." Basically, therefore, the Official Action is asserting that the layer 34 of Uchida et al. could be divided into two layers. There are, however, a number of errors and improprieties associated with this assertion.

Firstly, the assertion that Uchida et al. could be modified such that layer 34 is divided into two layers is an improper basis for setting forth a rejection based upon anticipation. Anticipation cannot be based on what "could be" taught by the reference or what might be taught through modification of a reference. As noted by the Court of Appeals for the Federal Circuit in *Lindemann Maschinenfabrik GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. § 102, the Court stated:

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Here, by the Examiner's own admission, Uchida et al. fails to disclose each and every element claimed in Claim 1. As such, Uchida et al. fails to anticipate the claimed invention and, thus, the claimed invention is distinguishable over Uchida et al.

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Secondly, even assuming for the sake of argument the Official Action intended to reject Claim 1 as being obvious, the Official Action has not provided any reason or motivation to lead one of ordinary skill in the art to divide the layer 34 of Uchida et al. into two layers. In addition, there appears to be no disclosure in Uchida et al. to lead one of ordinary skill in the art to modify Uchida et al. as proposed in the Official Action. Therefore, the present invention as claimed in Claim 1 would be unobvious over the disclosure contained in Uchida et al.

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

Should it be believed that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below. Please grant any required extensions of time and charge any fees due in connection with this request to deposit account no. 08-2025.

Respectfully submitted,

Dated: August 19, 2005

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